Claims

1. A method for the regeneration of denox catalysts with an elevated SO_2/SO_3 conversion rate by the accumulation of iron compounds, characterized in that the catalyst is treated with a substantially aqueous acidic solution with an addition of antioxidants.

2. The method according to Claim 1, characterized in that the aqueous acidic solution has a pH of 0.5 to 4.0.

3. The method according to Claim 1 or 2, characterized in that inorganic or organic acids are used as acid.

4. The method according to Claims 1 to 3, characterized in that H_2SO_4, HCL, H_3PO_4, HNO_3 are preferably used as inorganic acids and oxalic acid, citric acid, malonic acid, formic acid, chloroacetic acids, benzole sulfonic acid or mixtures of these acids are preferably used as organic acids.

5. The method according to Claims 1 to 4, characterized in that compounds from the groups of substituted phenols, hydroquinones, catechols, and/or aliphatic, araliphatic or aromatic mercapto compounds, dithiocarbonates, hydroxycarboxylic acids, enediols and/or phosphites and phosphonates, including salts, esters and metal complexes of these compounds are used as antioxidants.

6. The method according to Claims 1 to 5, characterized in that ascorbic acid is used.

7. The method according to Claims 1 to 6, characterized in that anionic, cationic, amphoteric, non-ionic or zwitterionic surfactants are additionally used.

8. The method according to Claims 1 to 7, characterized in that the antioxidant content is 0.2 to 2.0 wt.%.

9. The method according to Claims 1 to 8, characterized in that the treatment takes place in the reaction solution consisting of acid and antioxidants at temperatures from the ambient temperature to 100°C.

10. The method according to Claims 1 to 9, characterized in that the catalyst is moved in the reaction solution during the exposure time and/or the reaction solution is maintained in movement.

11. The method according to Claims 1 to 10, characterized in that the catalyst is moved by lifting and/or the reaction solution is maintained in movement by agitation or recirculation.

12. The method according to Claims 1 to 11, characterized in that an ultrasonic treatment or a treatment with low-frequency oscillations additionally takes place in the reaction solution.

13. The method according to Claims 1 to 12, characterized in that a low-frequency oscillation in a range from approximately 20 to 1000 Hz or ultrasound in a range from 10,000 to 100,000 Hz is used.

14. The method according to Claims 1 to 13, characterized in that the primary treatment with reaction solution in the ultrasonic treatment are carried out successively in separate basins.

15. The method according to Claims 1 to 14, characterized in that the catalyst is subjected to a mechanical pretreatment in order to remove fine dust and/or to a pretreatment with water.

16. The method according to Claims 1 to 15, characterized in that after the treatment with reaction solution the catalyst is washed with water and dried.

17. The method according to Claims 1 to 16, characterized in that a re-impregnation with water-soluble compounds of the activator elements is carried out, if necessary, after the drying.

18. A regenerated denox catalyst , characterized in that it was subjected to a method according to Claims 1 to 17.

ABSTRACT

The invention relates to a method for regenerating DeNOx catalysts having an increased SO_2/SO_3 conversion rate as a result of the cumulation of iron compounds, and is characterized in that the catalysts are treated with an essentially aqueous acid solution, preferably having a pH between 0.5 and 4, and with an addition of antioxidants.